IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

Claims 1-8.   (Canceled)

9.   (Previously Presented)   The system of claim 16, wherein the signal profiles of the standard sample is derived from a library.

10.   (Previously presented)   The system of claim 9, wherein the library is generated by a neural network.

11.   (Previously Presented)   The system of claim 16, wherein the different differentially responsive sensors change optically, electrically, magnetically, mechanically, physically, or a combination thereof.

12.   (Previously Presented)   The system of claim 16, wherein the different differentially responsive sensors are selected from the group consisting of crystalline colloidal array (CCA) containing sensors, metal oxide sensors, dye-impregnated polymers coated onto beads or optical fibers, bulk conducting organic polymers, capacitance sensors, chemically-sensitive resistor sensors, and combinations thereof.

13.   (Previously presented)   The system of claim 12, wherein the chemically-sensitive resistor sensors are comprised of regions of a non-conductive material and regions of a conductive material compositionally different than the non-conductive material, each resistor providing an electrical path through the regions of conductive and non-conductive material, wherein interaction of the molecule with the resistor provides a change in resistance in the resistor.

14.   (Previously Presented)   The system of claim 16, wherein the chemical or physical property is selected from the group consisting of side groups, charge, hydrophobicity, polarity, molecular size or shape, and chirality.

15.   (Previously Presented)   The system of claim 16, wherein the different differentially responsive sensors are chemically sensitive resistors.

16.   (Previously Presented)   An analyte screening system, comprising:

a sensor array comprising a plurality of different differentially responsive sensors;

a measuring device, connected to the sensor array;

a computer;

a data storage device in communication with the computer; and

a plurality of signal profiles from a plurality of standard samples, not including an analyte of interest, having a known specific activity, chemical or physical property, or function stored on the data storage device;

the measuring device detecting a signal from each of the plurality of different

differentially responsive sensors when the sensor array is contacted with the analyte

of interest and the computer comprising instructions on a computer readable

program for causing the computer to assemble the signals from each of the sensors

in the array into a sensor array signal profile;

wherein the computer is operative to compare the sensor array signal profile

to the plurality of previously obtained signal profiles from the plurality of standard

samples not including the analyte of interest, identifying the activity, chemical or

physical property, or function of at least one known analyte that most closely

correlates with the sensor array signal profile, wherein the correlation of the sensor

array signal profiles to the previously obtained signal profiles is predictive of a

specific activity, chemical or physical property, or function of the analyte of interest,

and

wherein the analyte comprises an alkane, alkene, alkyne, diene, alicyclic

hydrocarbon, arene, alcohol, ethers, ketones, aldehydes, cyclic hydrocarbons,

carbonyls, carbanions, polynuclear aromatics and/or halide derivative.

17.   (Previously Presented)   An analyte screening system, comprising:

a sensor array comprising a plurality of different differentially responsive

sensors;

a measuring device, connected to the sensor array;

a computer;

a data storage device in communication with the computer; and

a plurality of signal profiles from a plurality of standard samples, not including

an analyte of interest, having a known specific activity, chemical or physical property,

or function stored on the data storage device;

the measuring device detecting a signal from each of the plurality of different

differentially responsive sensors when the sensor array is contacted with the analyte

of interest and the computer comprising instructions on a computer readable

program for causing the computer to assemble the signals from each of the sensors

in the array into a sensor array signal profile;

wherein the computer is operative to compare the sensor array signal profile

to the plurality of previously obtained signal profiles from the plurality of standard

samples not including the analyte of interest, identifying the activity, chemical or

physical property, or function of at least one known analyte that most closely

correlates with the sensor array signal profile, wherein the correlation of the sensor

array signal profiles to the previously obtained signal profiles is predictive of a

specific activity, chemical or physical property, or function of the analyte of interest,

and

wherein the analyte consists essentially of an alkane, alkene, alkyne, diene,

alicyclic hydrocarbon, arene, alcohol, ethers, ketones, aldehydes, cyclic

hydrocarbons, carbonyls, carbanions, polynuclear aromatics and/or halide derivative.